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| EXAMINER | |
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| GUARINO, RAHEL | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/765,154 | TWU ET AL. | |
| | Examiner | Art Unit | |
| | Rahel Guarino | 2611 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35,37 and 38* is/are rejected.

7)☐ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, see remarks, filed 8/10/2007, with respect to the rejection(s) of claim(s) 1,6,11,18, 25 and 30 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Omura et al. US 5,157,686 in view of Norden et al. (WO 96/32784) and in further view of Grau et al. US 5,077,753.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**3. Claim 1-3,5-8,10,18-20, 22-27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Omura et al. US 5,157,686 in view of Norden et al. (WO 96/32784).**

Re claim 1, Omura discloses a method for encoding a data signal (fig.1a), comprising:

encoding the data signal (data bit sequence) into an encoded data signal (col.3 lines

35-38, the data bit sequence is encoded by Manchester generator (fig.1a (112) and fig.2 shows the Manchester encoded bits), wherein the encoded data signal is a first DC-balanced signal (encoding the data signal with Manchester coding ensures that the Manchester coded signal has no direct current component (see Keller col. 2 lines 23-26); and spreading (fig. 1a) the encoded data signal with a spreading code (fig.1a (113)) to generate an output transmission signal to be transmitted (col. 7 lines 22-48, the Manchester coded bits are modulated by the RF modulator (fig.1a (115)) through a communications medium to a receiver (col. 11 lines 1-3), Omura does not disclose wherein the output transmission signal is a second DC-balanced signal.

However, Norden discloses wherein the output transmission signal is a second DC-balanced signal.

Therefore, taking the combined teaching of Omura and Norden as a whole would have been rendered obvious to one skilled in the art to modify Omura to utilize DC-balanced output signal for the benefit of reducing any phase errors at the transmission.

Re claim 2, the modified invention as claimed in claim 1, wherein the Manchester Code Is used to encode the data signal (col. 7 lines 10-19 and fig.2 shows the Manchester encoded bits,"Omura").

Re claim 3, the modified invention as claimed in claim 1 wherein the encoded data signal comprises the data signal and an inversion of the data signal (col. 9 lines 13-20,"Omura").

Re claim 5, the modified invention as claimed in claim 1 wherein each bit in the

data signal corresponds to two bits in the encoded data signal exclusively (col. 7 lines 10-19 and fig.2, "Omura").

Re claim 6, Omura discloses a method for encoding a data signal (fig.1a), comprising the steps of:

spreading the data signal with a spreading code (fig.1a (113) to generate a transmission signal (spread spectrum signal), wherein the transmission signal corresponds to the data signal col. 9 lines 3-20); and encoding the transmission signal (fig.1a (115)) into an output transmission signal to be transmitted through a communications medium to a receiver (col. 11 lines 1-3), wherein the output transmission signal contains bits (fig.4), the value of each bit is either a first value or a second value (fig.4 either C(0) or C(1))), and the number of bits with the first value is equal to the number of bits with the second value (col. 9 lines 8-17) in the output transmission, Omura does not disclose wherein the output transmission signal is a DC-balanced signal.

However, Norden discloses wherein the output transmission signal is a DC-balanced signal.

Therefore, taking the combined teaching of Omura and Norden as a whole would have been rendered obvious to one skilled in the art to modify Omura to utilize DC-balanced output signal for the benefit of reducing any phase errors at the transmission.

Re claim 7, the modified invention as claimed in claim 6, wherein the Manchester Code is used to encode the data signal (col. 7 lines 10-19 and fig.2 shows the Manchester encoded bits,"Omura").

Re claim 8, the modified invention as claimed in claim 6, wherein the encoded data signal comprises the data signal and an inversion of the data signal (col. 9 lines 13-20,"Omura").

Re claim 10, the modified invention as claimed in claim 6, wherein each bit in the data signal corresponds to two bits in the encoded data signal exclusively (col. 7 lines 10-19 and fig. 2,"Omura").

Re claim 18, Omura discloses a method for encoding a data signal (fig.1a), comprising:

encoding the data signal (data bit sequence) into an encoded data signal (col.3 lines 35-38, the data bit sequence is encoded by Manchester generator (fig.1a (112) and fig.2 shows the Manchester encoded bits), wherein the encoded data signal is a first DC-balanced signal (encoding the data signal with Manchester coding ensures that the Manchester coded signal has no direct current component (see Keller col. 2 lines 23-26); and spreading code generator (fig. 1a) for outputting a spreading code (fig.1a (113)); a spreader (fig. 1a (112)) coupling to the spreading code generator (fig. 1 (113)) and the encoder; and for spreading the encoded data signal according to the spreading code and outputting transmission signal to be transmitted (col. 7 lines 22-48, the Manchester coded bits are modulated by the RF modulator (fig.1a (115)) through a communications medium to a receiver (col. 11 lines 1-3), Omura does not disclose wherein the output transmission signal is a second DC-balanced signal.

However, Norden discloses wherein the output transmission signal is a second DC-balanced signal.

Therefore, taking the combined teaching of Omura and Norden as a whole would have been rendered obvious to one skilled in the art to modify Omura to utilize DC-balanced output signal for the benefit of reducing any phase errors at the transmission.

Re claim 19, the modified invention as claimed in claim 18, wherein the Manchester Code is used to encode the data signal (col. 7 lines 10-19 and fig.2 shows the Manchester encoded bits, "Omura").

Re claim 20, the modified invention as claimed in claim 18, wherein the encoded data signal comprises the data signal and an inversion of the data signal (col. 9 lines 13-20, "Omura").

Re claim 22, the modified invention as claimed in claim 18, wherein each bit in the data signal corresponds to two bits in the encoded data signal exclusively (col. 7 lines 10-19 and fig.2,"Omura").

Re claim 23, the modified invention as claimed in claim 18, wherein the two corresponding bits in the encoded signal are the first value and the second value respectively if the bit in the data signal is the first value (the Manchester encoded bits are "01" for the first bit in data signal, which is "0" of the data signal; see fig.2) and the two corresponding bits in the encoded data signal are the second value and the first value respectively if the bit in the data signal is the second value (the Manchester encoded bits are "10" for the second bit in data signal, which is "1" of the data signal; see fig.2,"Omura").

Re claim 24, the modified invention as claimed in claim 18, further comprising;

A modulator (fig.1 (40)) for modulating the output signal using a carrier wave to obtain a modulated signal (col. 3 lines 25-30); and an output device for outputting the modulated signal (col. 3 lines 32-33,"Grau").

Re claim 25, Omura discloses a method for encoding a data signal (fig.1a), comprising:

a spreading coder generator the data signal (fig.1a (113)) for outputting a spreading code (chip code); a spreader (fig. 1a (112)) coupling to the spreading code generator (fig. 1 (113)) and the encoder; and for spreading the encoded data signal according to the spreading code and outputting transmission signal to be transmitted (col. 7 lines 22-48, the Manchester coded bits are modulated by the RF modulator (fig.1a (115)) through a communications medium to a receiver (col. 11 lines 1-3), wherein the output transmission signal contains bits (fig.4), the value of each bit is either a first value or a second value (fig.4 either C(0) or C(1))), and the number of bits with the first value is equal to the number of bits with the second value (col. 9 lines 8-17) in the output transmission, Omura does not disclose wherein the output transmission signal is a DC-balanced signal.

However, Norden discloses wherein the output transmission signal is a DC-balanced signal.

Therefore, taking the combined teaching of Omura and Norden as a whole would have been rendered obvious to one skilled in the art to modify Omura to utilize DC-balanced output signal for the benefit of reducing any phase errors at the transmission.

Re claim 26, the modified invention as claimed in claim 25, wherein the Manchester Code is used to encode the data signal (col. 7 lines 10-19 and fig.2 shows the Manchester encoded bits,"Omura").

Re claim 27, the modified invention as claimed in claim 25, wherein the encoded data signal comprises the data signal and an inversion of the data signal (col. 9 lines 13-20,"Omura").

Re claim 29, the modified invention as claimed in claim 25, wherein each bit in the data signal corresponds to two bits in the encoded data signal exclusively (col. 7 lines 10-19 and fig. 2,"Omura").

4. **Claim 4,9,21,28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Omura et al. US 5,157,686 in view of Norden et al. (WO 96/32784) in further view Grau et al. US 5,077,753.**

Re claim 4, the modified invention as claimed in claim 1, does not teach wherein the encoded data signal comprises the data signal and a reversed inversion of the data signal.

However, Grau discloses the encoded data signal comprises the data signal and a reversed inversion of the data signal (col. 3 lines 14-22).

Therefore, taking the combined teaching of Grau, Omura and Norden as a whole would have been rendered obvious to one skilled in the art to modify Omura and Norden to utilize a reversed inversion of the radio signal for the benefit of better coding.

Re claim 9, the modified invention as claimed in claim 6, does not teach wherein

the encoded data signal comprises the data signal and a reversed inversion of the data signal.

However, Grau discloses the encoded data signal comprises the data signal and a reversed inversion of the data signal (col. 3 lines 14-22).

Therefore, taking the combined teaching of Grau, Omura and Norden as a whole would have been rendered obvious to one skilled in the art to modify Omura and Norden to utilize a reversed inversion of the radio signal for the benefit of better coding.

Re claim 21, the modified invention as claimed in claim 18, does not teach wherein the encoded data signal comprises the data signal and a reversed inversion of the data signal.

However, Grau discloses the encoded data signal comprises the data signal and a reversed inversion of the data signal (col. 3 lines 14-22).

Therefore, taking the combined teaching of Grau, Omura and Norden as a whole would have been rendered obvious to one skilled in the art to modify Omura and Norden to utilize a reversed inversion of the radio signal for the benefit of better coding.

Re claim 28, the modified invention as claimed in claim 25, does not teach wherein the encoded data signal comprises the data signal and a reversed inversion of the data signal.

However, Grau discloses the encoded data signal comprises the data signal and a reversed inversion of the data signal (col. 3 lines 14-22).

Therefore, taking the combined teaching of Grau, Omura and Norden as a whole would have been rendered obvious to one skilled in the art to modify Omura and

Norden to utilize a reversed inversion of the radio signal for the benefit of better coding.

**5. Claim 11-17, 30-35, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grau, Jr. et al. US, 5,077,753 in view of Norden et al. (WO 96/32784).**

Re claim 11, Grau discloses a method for encoding a data signal (fig.1), comprising:

generating a spreading code (fig.1 (36, binary code generator generates PN code)), wherein the spreading code contains a direct current (DC) component (col. 3 lines 19-23); encoding the spreading code into an encoded spreading code (col. 3 lines 35-43), wherein the encoded spreading code is a first DC-balanced signal and spreading the data signal with the encoded spreading code to generate an output transmission signal to be transmitted through a communications medium to a receiver (col. 3 lines 46-67), Grau does not disclose wherein the output transmission signal is a second DC-balanced signal.

However, Norden discloses wherein the output transmission signal is a second DC-balanced signal.

Therefore, taking the combined teaching of Grau and Norden as a whole would have been rendered obvious to one skilled in the art to modify Grau to utilize DC-balanced output signal for the benefit of reducing any phase errors at the transmission.

Re claim 12, the modified invention as claimed in claim 11, wherein the Manchester code is used to encode the spreading code (col. 3 lines 12-14,"Norden").

Re claim 13, the modified invention as claimed in claim 11, wherein the encoded spreading code comprises the spreading code and an inversion of the spreading code (col. 3 lines 14-18,"Grau").

Re claim 14, the modified invention as claimed claim 11 wherein the encoded spreading code comprises the spreading code and a reversed inversion of the spreading code (col. 3 lines 14-18,"Grau").

Re claim 15, the modified invention as claimed in claim 11, wherein each bit in the spreading code corresponds to two bits in the encoded spreading code exclusively (col. 3 lines 37-45,"Grau").

Re claim 16, the modified invention as claimed in claim 11 wherein the spreading code is a Barker code, and the sequence of the Barker code is {1,1,1,0,0,0,1,0,0,1,0} (col. 3 lines 14-18,"Grau").

Re claim 17,the modified invention as claimed in claim 11 wherein the spreading code is a Pseudo random Noise (PN) sequence (col. 1 lines 55-62,"Grau").

Re claim 30, Grau discloses an apparatus for encoding a data signal (fig.1), comprising:

a spreading code generator (fig.1 (36, binary code generator generates PN code)) for outputting a spreading code (col. 3 lines 3-5), wherein the spreading code contains a direct current (DC) component (col. 3lines 19-23); encoder coupled to spreading code generator for encoding the spreading code (col. 3 lines 35-43), wherein the encoded

spreading code is a first DC-balanced signal and spreading the data signal with the encoded spreading code to generate an output transmission signal to be transmitted through a communications medium to a receiver (col. 3 lines 46-67), Grau does not disclose wherein the output transmission signal is a second DC-balanced signal.

However, Norden discloses wherein the output transmission signal is a second DC-balanced signal.

Therefore, taking the combined teaching of Grau and Norden as a whole would have been rendered obvious to one skilled in the art to modify Grau to utilize DC-balanced output signal for the benefit of reducing any phase errors at the transmission.

Re claim 31, the modified invention as claimed in claim 30, wherein the Manchester code is used to encode the spreading code (col. 3 lines 12-14,"Norden").

Re claim 32, the modified invention as claimed in claim 30, wherein the encoded spreading code comprises the spreading code and an inversion of the spreading code (col. 3 lines 14-18,"Grau").

Re claim 33, the modified invention as claimed claim 30, wherein the encoded spreading code comprises the spreading code and a reversed inversion of the spreading code (col. 3 lines 14-18,"Grau").

Re claim 34, the modified invention as claimed in claim 30, wherein each bit in the spreading code corresponds to two bits in the encoded spreading code exclusively (col. 3 lines 37-45,"Grau").

Re claim 35, the modified invention as claimed in claim 30, wherein the

spreading code is a Barker code, and the sequence of the Barker code is {1,1,1,0,0,0,1,0,0,1,0} (col. 3 lines 14-18,"Grau").

Re claim 37,the modified invention as claimed in claim 30, wherein the spreading code is a Pseudo random Noise (PN) sequence (col. 1 lines 55-62,"Grau").

Re claim 38, the modified invention as claimed in claim 30, further comprising; A modulator (fig.1 (40)) for modulating the output signal using a carrier wave to obtain a modulated signal (col. 3 lines 25-30); and an output device for outputting the modulated signal (col. 3 lines 32-33,"Grau").

### *Allowable Subject Matter*

6. Claim 36 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rahel Guarino whose telephone number is 571-270-1198. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Payne David can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RG

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